

1-8: Recursive Formulas for Sequences

Warm-up:

1. The first term in a sequence is \$50. Each term after that is found by multiplying the previous term by 1.03 and rounding to the nearest cent. Find the first 6 terms.

2. $w_n = 15 + 2(n - 1)$

a. Find the first four terms.

b. Find w_8 .

Question: Do you notice any pattern in question 2 above? If so, what is that pattern?

Recursive Formula:

a.

b.

Example 1: Find the first four terms for the sequence

$$\begin{cases} t_1 = 2 \\ t_n = \text{Previous term} + 6, \text{ for int. } n \geq 2 \end{cases}$$

How can we do this in our calculators?

Example 2:
$$\begin{cases} g_1 = 4 \\ g_n = 4(\text{previous term}) - 7, \text{ for int. } n \geq 2 \end{cases}$$

Give the first five terms.

Example 3: Matt Mitarnowski invested \$5000 in a savings account that pays 3% compounded annually. He plans to withdraw \$175 at the end of each year.

a. Set up a recursive formula for this sequence.

b. Give the account balance at the end of years 2, 3, and 4.

Homework:

**"A SHIP IN PORT IS SAFE, BUT THAT'S NOT WHAT SHIPS ARE
BUILT FOR." - GRACE MURRAY HOPPER**